James port, Missouri
Water Supply Study
City Lake

Jamesport is located in East Central Daviess County Missouri, on State Highway 190. The Jamesport Lake is located approximately two miles North of town, just North of highway 6.

Jamesport uses about 60,000 gallon of water daily.
Optimized demand is 69,050 gallon per day.
Drainage area of the lake is 900 acres.

JAMESPORT City Lake analysis consisted of using the NRCS's computer program called "RESOP". Following is the data and procedures for input to the program.

Jamesport lake was critically low in 1988 and since then, the lake was enlarged to provide additional storage. Following is storage table for the existing lake.

STO-AREA Elevation-Storage and Elevation-Area data were determined from July 16, 2000 survey made by USGS.

JAMESPORT LAKE

Elevation (feet)	Area (acres)	Volume (acre-ft)	
869.0	0.01	0.001	
871.0	0.43	0.35	
873.0	1.47	2.14	
875.0	2.78	6.39	
877.0	4.39	13.54	
879.0	6.25	24.07	
881.0	9.62	39.38	
883.0	12.44	61.53	
885.0	15.02	89.26	
887.0	17.04	121.15	
889.0	19.49	157.52	Water Surface Elevation on 7/16/00
889.3	20.14	163.46	Spillway Elevation

Starting storage was considered at maximum pool.

GENERAL The adjustment to convert from pan evaporation to lake evaporation was made for the control word EVAP. The factor was 0.76. As a result a factor of 100.0 was used here.

The record period of drought is in the 1950's.
Analysis began in January 1951 and ended December 1959.

LIMITS Max. Pool storage 163 Ac.Ft.
Minimum Pool storage 10 Ac.Ft.

Starting storage was considered at maximum pool.

The drainage area of the lake is 900 acres (1.41 square miles).

SEEPAGE The reservoir seepage varied from 0 seepage near empty to a maximum of 2 inch per month when at full pool. The material in the dam is compacted earth of loamy clay soils. The lakes are shallow so that static pressure is low. As a result seepage is small.

RAINFALL Rainfall data came from the Gallatin, Mo. rain gage. For periods of missing data the Trenton gage was used to fill in this missing dates.

RUNOFF This is the runoff into the lake from its drainage area. Monthly runoff volumes in watershed inches were determined at the Weldon River stream gage at Mill Grove. These values were compared to the runoff at the East Fork Big Creek located at Bethany. Results were very similar. Monthly runoff was compared to the rainfall and if the results did not appear reasonable, adjustments were made for that month by looking at individual rains and estimating antecedent moisture, then adjusting runoff based on NRCS's runoff curve numbers.

EVAP. Pan evaporation at the Lakeside gaging station was used as a base because it has data for year around evaporation. This data was updated with gage data from stations at Spickard, New Franklin, and Columbia. Depending on the latest data for the station nearest to King City. The adjustment factor of 0.76 to convert from pan to lake evaporation was applied at this step.

DEMAND This was determined by city records. Jamesport has a total daily use of 60,000 gallons per day.

OTHER This refers other inflows or outflows. Because there was nothing added or used, this control word was not used.

James Port, Missouri

Water Supply Study

City Lake

Storage Volume

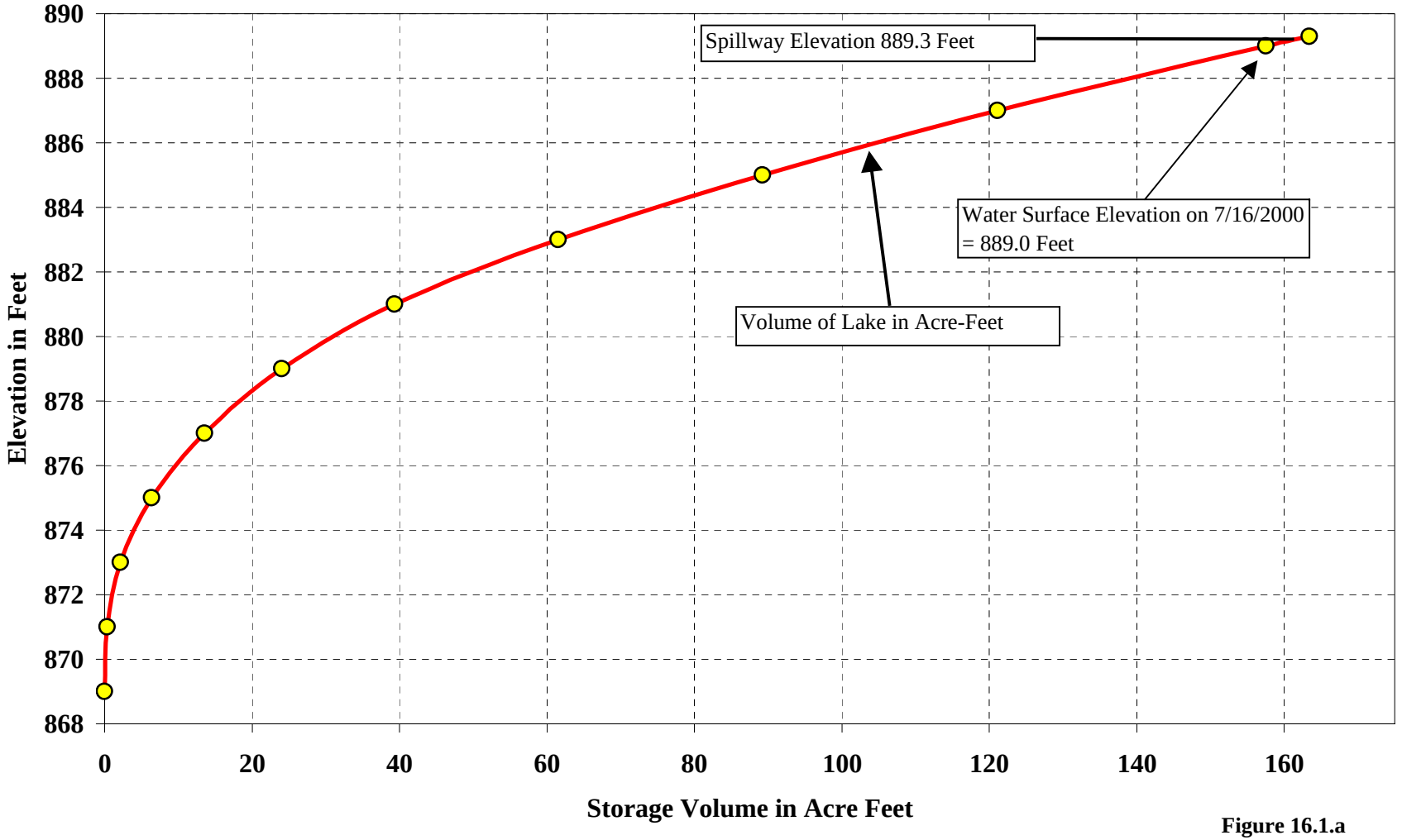


Figure 16.1.a

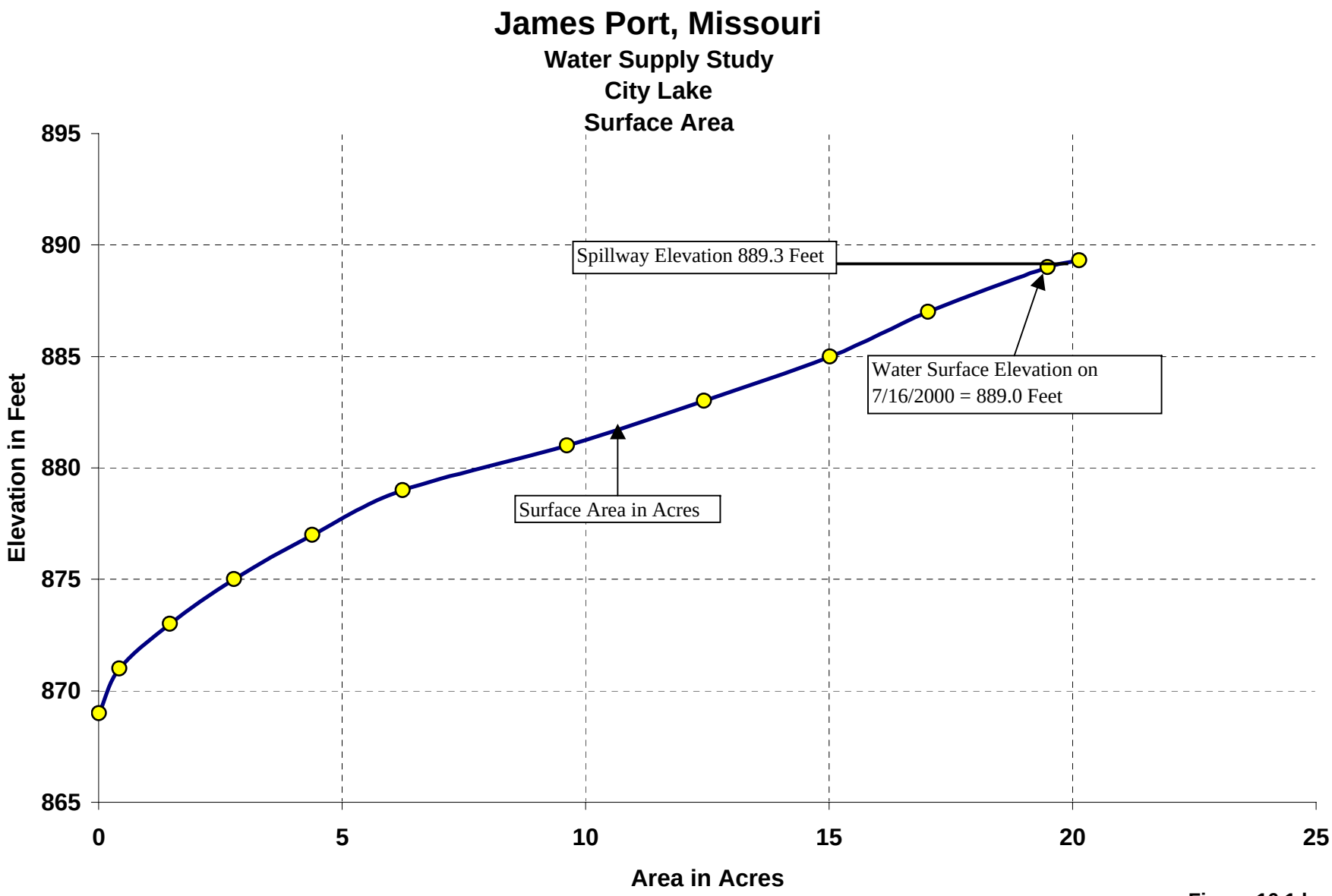

James Port, Missouri
Water Supply Study
City Lake
Surface Area
Elevation in Feet
895
890
885
880
875
870
865
0
5
10
15
20
25
Area in Acres
Spillway Elevation 889.3 Feet
Water Surface Elevation on
7/16/2000 = 889.0 Feet
Surface Area in Acres

Figure 16.1.b

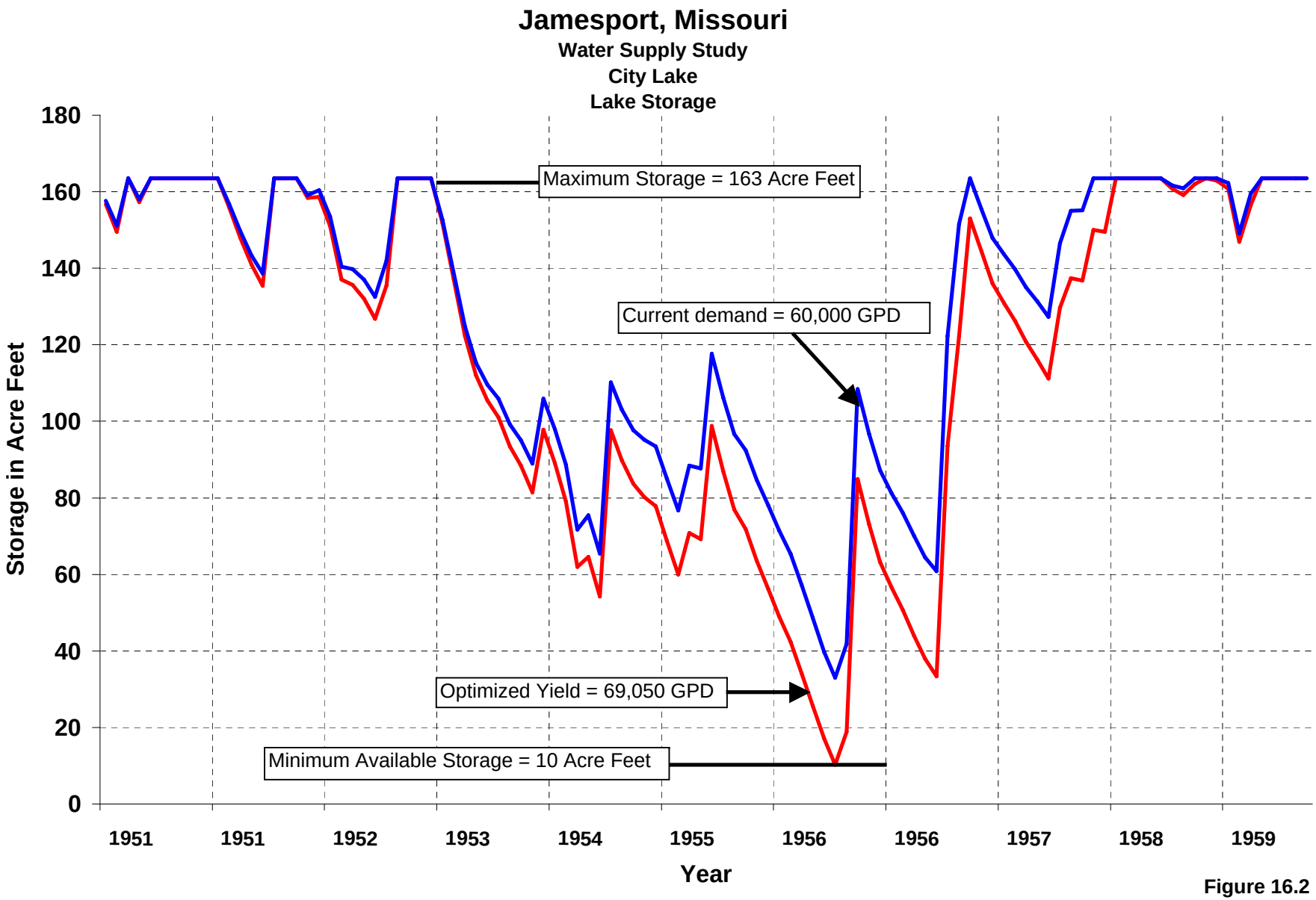
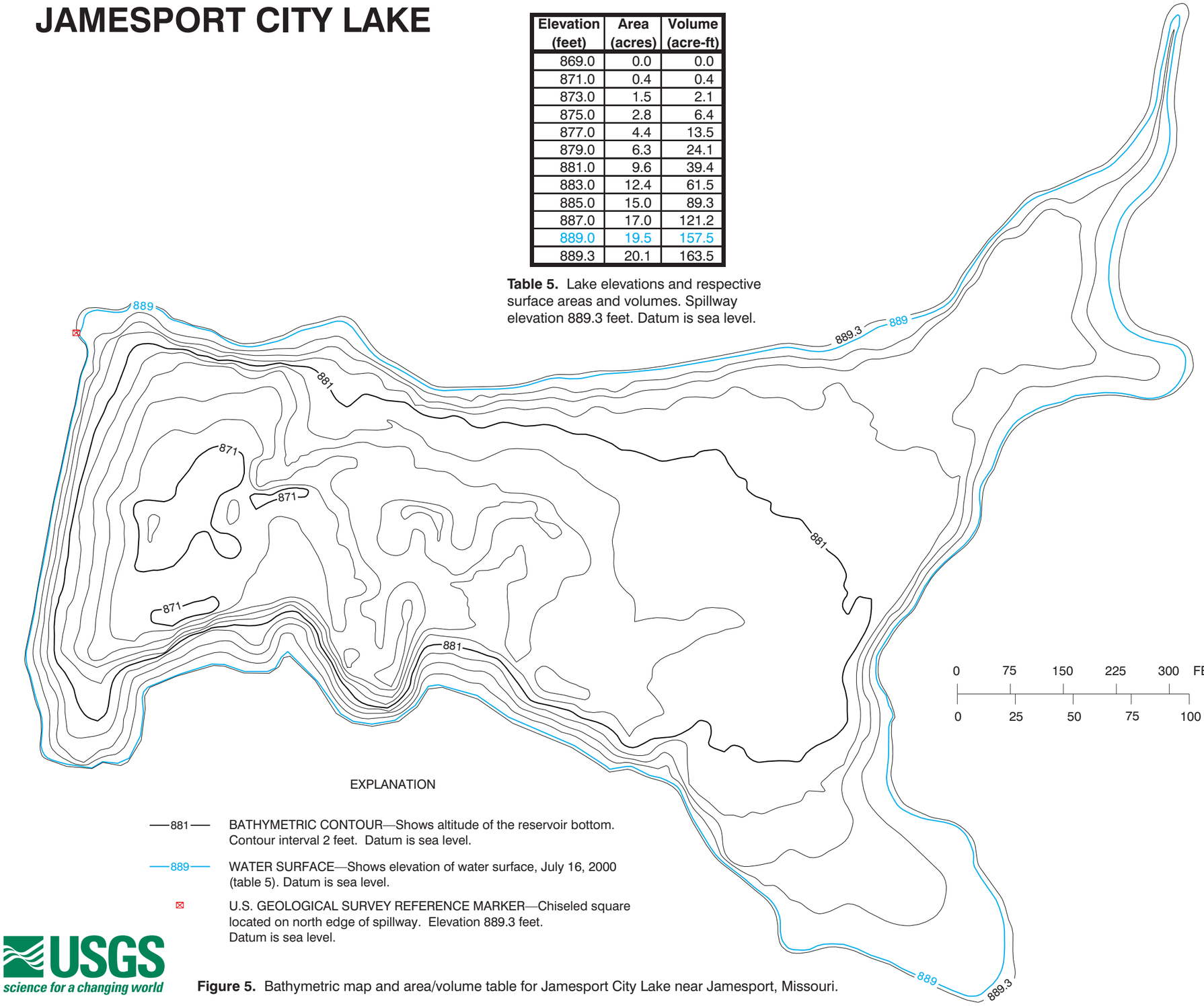

Jamesport, Missouri
Water Supply Study
City Lake
Lake Storage
Storage in Acre Feet
180
160
140
120
100
80
60
40
20
0
1951
1951
1952
1953
1954
1955
1956
1956
1957
1958
1959
Year
Maximum Storage = 163 Acre Feet
Current demand = 60,000 GPD
Optimized Yield = 69,050 GPD
Minimum Available Storage = 10 Acre Feet

Figure 16.2

JAMESPORT CITY LAKE

Elevation (feet)	Area (acres)	Volume (acre-ft)
869.0	0.0	0.0
871.0	0.4	0.4
873.0	1.5	2.1
875.0	2.8	6.4
877.0	4.4	13.5
879.0	6.3	24.1
881.0	9.6	39.4
883.0	12.4	61.5
885.0	15.0	89.3
887.0	17.0	121.2
889.0	19.5	157.5
889.3	20.1	163.5

Table 5. Lake elevations and respective surface areas and volumes. Spillway elevation 889.3 feet. Datum is sea level.



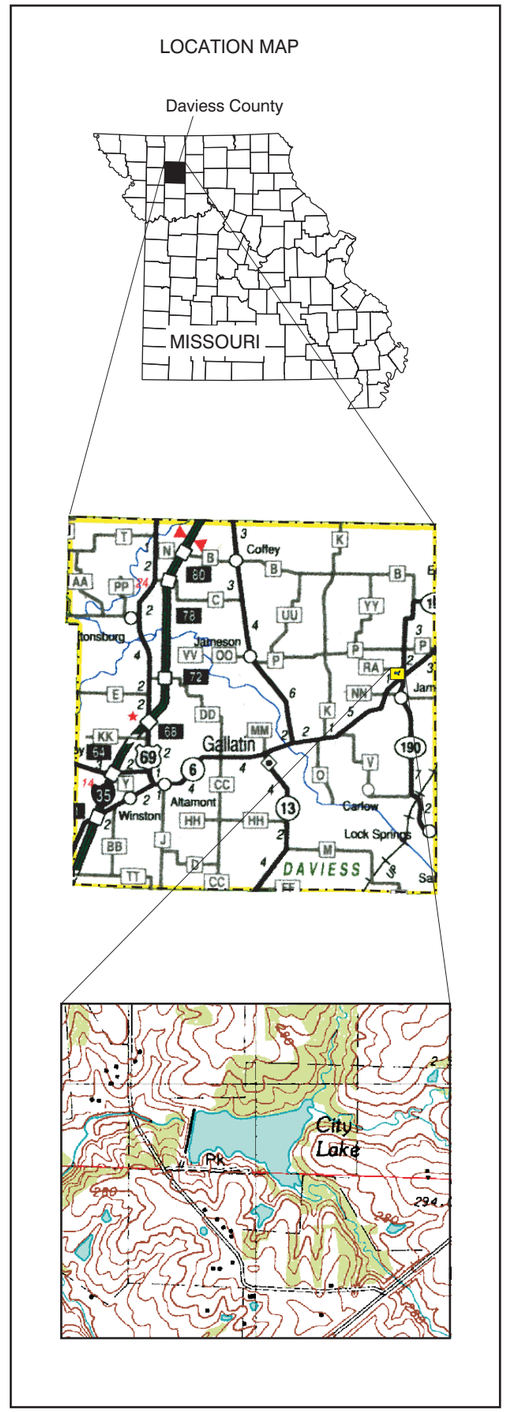


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Figure 5. Bathymetric map and area/volume table for Jamesport City Lake near Jamesport, Missouri.